



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

BERTEZ et al.

Serial No. 09 / 755,053

Group 1725

Filed January 08, 2001

Examiner Jonathan J. Johnson

Method and apparatus for the laser cutting of stainless steel, coated steel,  
aluminum and aluminum alloys with a bifocal optical component

DECLARATION UNDER RULE 132

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir :

I, Steen Erik Nielsen, a citizen of Denmark, residing at Park Alle 345, 2605 Broendby, Denmark, declare that :

I am currently employed by the FORCE Technology, Broendby, Denmark.

I graduated as an engineer from the Technical University of Denmark in 1981.

I have over 20 years experience in the field of thermal welding and cutting, and especially in laser beam welding and cutting.

I am named inventor or co-inventor in several US and European patents or pending patent applications in this field. In particular, I am the inventor of US patent n° US 6,175,096 B1 (PCT/DK97/00412 = WO 98/14302), entitled: Method of processing a material by means of a laser beam (hereafter called "*my patent*" or US'096).

I am aware of the fact that most of the Claims of US patent application n° 09 /755,053 (Bertez et al.) has been rejected as being unpatentable over *my patent* (i.e. US'096) in view of Faerber (WO 96/23624).

As the inventor of US'096, I consider that such a rejection is, on a technical point of view, not justified for at least the following reasons.

I submit this Declaration in support of the pending claims of Bertez et al's patent application and specifically because, in my opinion, as of the priority date of the present patent application, a person of ordinary skill in the art would not derive Bertez et al's invention from the prior art.

If my understanding is correct, Bertez et al's invention deals with a laser cutting process of stainless or coated steels, and aluminum and its alloys by means of a multi-focal optical objective, such as a bifocal lens, used in combination with a binary gas mixture containing nitrogen and oxygen, the proportion of nitrogen being of 90 vol. % or more.

When I have been told that Bertez et al filed a patent application on such a combination of the use of a multi-focal optical objective with a binary N<sub>2</sub>/O<sub>2</sub> gas mixture, I thought that it was a good idea.

Indeed, when I was working with the Dual Focus (DF) technique protected by *my patent*, I made a lot of tries, but I only considered pure gases in combination with a DF lens.

More precisely, at the start of the tests, I used only pure nitrogen for laser cutting high-pressure stainless steel cutting, whereas, at a later stage, I tried only pure oxygen for cutting primed mild steel plates.

In other words, I never considered to use mixed gases, especially nitrogen/oxygen mixtures, in combination with a bifocal lens as it was not the central part of my patent or a precondition for the functionality of the DF lens.

For this reason, I think that to use a mixed gas containing nitrogen and oxygen was clearly not obvious in view of the teaching of *my patent*.

Further, regarding the document from Faerber (ie WO'624), it clearly appears that it concerns the used of nitrogen/oxygen mixtures for laser cutting various materials, but in combination only with a classical lens, i.e. a mono focal lens. It is not disclosed or suggested in WO'624 that such a gas mixture would work well with bifocal lens.

Hence, I think that a man of ordinary skill in the art would not have combined these documents together as they deal with different technologies, i.e. bifocal lens used with only pure gases *versus* monofocal lens used with mixed gases.

Besides, when I made the tests for verifying that *my invention* was working, I of course knew that nitrogen/oxygen mixtures were already used for laser cutting stainless steels, aluminum or similar materials by means of a classical mono-focal lens (as in WO'624).

However, albeit that knowledge, I never contemplated to use mixed gases during the tests I made in the frame of *my invention*; see above.

In my opinion, Bertez et al's invention remains very surprising for a man of ordinary skilled in the art as it shows, for the very first time, that mixed gases could lead to a great improvement when used in combination with a multifocal objective, such as a bifocal lens, when carrying out a laser cutting process.

In other words, Bertez et al's invention is, in my opinion, unobvious in view of the prior art.

Besides, I would like to emphasize that I am in no way associated with the Assignee of US Application N° 09/755,053, and as such I have neither a present interest nor contemplated interest in such application, any patent that may result there from, or any of the rights represented thereby.

And I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with knowledge that wilful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of United States Code and that such wilful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: December 03, 2003

  
Steen E. NIELSEN